OPTIONAL FORM 99 (7-90)

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To Ken Van Velsor | From John Hoole

Dept./Agency | Phone #

Fax # 510-286-5600 | Fax #

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United States Departi

FISH AND WILDL

Ecological Si

Sacramento Field Office
3310 El Camino Avenue, Suite 130
Sacramento, California 95821-6340

IN REPLY REFER TO:

1-1-97-F-106

June 26, 1997

Mr. David H. Densmore
Division Administrator
Federal Highway Administration
980 Ninth Street, Suite 400
Sacramento, California 95814-2724

Subject: Formal Section 7 Consultation on Richmond-San Rafael Bridge Retrofit Project in Marin and Contra Costa County, California.

Dear Mr. Densmore:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion based on the Service's review of the proposed Richmond San Rafael Bridge (Bridge) seismic retrofit and related activities, and its effects on the endangered American peregrine falcon (*Falco peregrinus anatum*) in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.)(Act). Your February 3, 1997, request for formal consultation was received on February 5, 1997.

This biological opinion is based on information provided in the Natural Environment Study/Biological Assessment (NES/BA) prepared by CH2MHILL, data provided by the Santa Cruz Predatory Bird Research Group (SCPBRG), a March 19, 1997, commitment by Caltrans to implement conservation measures, the final rule listing the peregrine falcon (35 CFR 16047), the proposed rule to delist the species (30 CFR 34406), and the Recovery Plan for the Peregrine Falcon (USFWS 1982). A complete administrative record of this consultation is on file in this office.

BIOLOGICAL OPINION

Description of the Proposed Action

The Federal Highway Administration (FHA) proposes to authorize the California Department of Transportation (Caltrans) to proceed with a seismic retrofit of the Richmond-San Rafael Bridge (Bridge). The seismic retrofit will occur within the same alignment as the existing bridge, and will consist of new piles, pile caps, bell casings, shaft strengthening, and strengthening of towers and superstructure structures and complete replacement of portions of the Bridge due to severe corrosion. Construction is anticipated to begin in August 1997 and extend through December 1999. For a complete description of the project, refer to the Natural Environment Study/Biological Assessment (NES/BA) (CH2MHILL 1996).

At a February 18, 1997, meeting, Caltrans agreed to include conservation measures to offset the impacts of the project to peregrine falcons. Caltrans submitted a letter to the Service, dated March 19, 1997, describing the

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commitment to implement the agreed upon measures. Measures include the funding of monitoring and "hacking" (release of young birds back to the wild) of peregrine falcons over three nesting seasons occurring within the construction time frame (years 1998, 1999, and 2000); a fourth nesting season of monitoring and hacking will be contracted in case construction activities continue beyond the anticipated three year schedule. Caltrans agreed to work with Brian J. Walton of the SCPBRG to ensure that the measures are implemented.

Species Account and Environmental Baseline

The American peregrine falcon was federally listed as endangered in 1970 (35 FR 16047). The following is a discussion of peregrine falcon biology, population status and trends. For further information refer to the *Pacific Coast Recovery Plan for the American Peregrine Falcon* (USDI 1982).

As stated in the *Pacific Coast Recovery Plan for American Peregrine Falcon* (USDI 1982), American peregrine falcons nest almost exclusively on cliffs, usually near water. Preferable sites are sheer cliffs 150 feet or more in height. The cliff usually has a small cave or overhung ledge large enough to contain three or four full grown nestlings. Several holes or ledges that can be used in alternate years are apparently not an absolute requirement, but probably increase the suitability of the cliff. Peregrines have nested from sea level to over 11,000 feet, anywhere suitable cliffs are found, except in the desert.

Bridges and tall buildings have become surrogate cliffs and are utilized by peregrine pairs for nesting, roosting and foraging (Hickey and Anderson 1969). Peregrines' use of bridges includes (1) year round occupation, with the bridges used as hunting perches, night roosts, perches to escape inclement weather, or other perching; (2) nesting by pairs from 1 February through 31 July; and (3) irregular occupation by immature peregrines, "floating" adults seeking vacant territories, or wintering migrants from northern populations. In the case of nesting pairs, no nest is built by the falcons. SCPBRG sometimes provides gravel-filled nest boxes, or eggs are laid in debris on ledges or in cavities. Nest sites are almost invariably below the roadway, and often on the portion of the bridge that is highest above the water. These latter "sites" can be repeated many times on any one bridge. Typically, only one pair will occupy a bridge.

Peregrines compete with other raptors and ecologically similar birds for cliff nests. For example, golden eagles (*Aquila chrysaetos*), red-tailed hawks (*Buteo jamaicensis*), prairie falcon (*Falco mexicanus*), turkey vultures (*Cathartes aura*), and ravens (*Corvus corax*) all nest in similar situations and may even use abandoned peregrine eyries. Peregrines defend the nesting territory vigorously against intrusion by some of these species. It is not clear, however, if this is a response to nest-site competition or is a response of perceived threats to adults or young.

Availability of nest sites may be a limiting factor in some areas. For example, peregrines historically nested all along the coast in southern California. Today, houses and other buildings are located on the tops of these sea cliffs, and recreation abounds in their vicinity to such an extent that few suitable nesting areas remain. Partly as a result of this, peregrine falcons currently do not nest along the coast from near Santa Barbara south to the Mexican border. Further loss of historical peregrine nest sites could limit recovery of the species in some areas.

Foraging areas are associated with each nest territory. This generally includes wooded areas, marshes, open grasslands, coastal strands and bodies of water. The peregrine falcon is a diurnal raptor that feeds almost entirely on small birds. Wooded areas near water attract a diverse avifauna, and bodies of water provide open areas where prey cannot easily escape attack. Marshes, savannas, and shorelines are also common foraging areas. Loss of foraging areas through modification of habitat may be a problem. In many areas human encroachment has caused nests to be abandoned, but it is difficult to separate the effects of habitat loss from the effects of disturbances to the birds themselves.

American peregrine falcons in the western United States have re-expanded in recent decades. In 1992, 113 pairs were known in California, most of which occurred in the northwestern portion of the state. On June 30, 1995, the Service published an advance notice of a proposal to remove the American peregrine falcon from the list of Endangered and Threatened Wildlife (50 FR 34406).

There are currently several pairs of peregrine falcons within the vicinity of the Richmond-San Rafael Bridge. The Oakland-Bay Bridge currently supports two pairs (Caltrans 1996), the Dumbarton Bridge also supports a pair of peregrine falcons (B. Walton, pers. comm., 1996), and peregrines have been observed utilizing the Hayward-San Mateo Bridge for perching and foraging (Caltrans 1997). In 1996, a pair of peregrine falcons exhibited potential nesting behavior at the Richmond-San Rafael Bridge. This pair was monitored regularly by the SCPBRG and it was determined that nesting did not occur (CH2MHILL 1996). The bridge is considered to be part of a territory for peregrines and is utilized for foraging and roosting (B. Walton, pers. comm. 1997).

Effects of the Action

A review of the literature indicates that disturbance can negatively affect avian productivity. Specifically, studies on waterfowl, colonial seabirds and raptors have shown that disturbance can cause nest abandonment, egg mortality due to exposure from flushing, increased predation of eggs and hatchlings, depressed feeding rates, increased adult energy demands, or avoidance of otherwise suitable habitat (Anderson and Keith 1980, Burger 1981, Pierce and Simons 1986, Knight and Skagen 1988, Henson and Grant 1991). Recurring disturbance, such as annual events, may cause a shift in breeding activity over time. Individuals that succeed in their reproductive efforts, in spite of noise disturbance, may not return to the same successful location the following year due to anticipated disturbance.

The use of motorized equipment during the breeding season within one half mile of suitable nesting habitat has the potential to disrupt essential breeding behaviors by: (1) causing abandonment of the breeding effort by failure to initiate nesting; (2) copulation disturbances resulting in infertile eggs; (3) causing abandonment of the breeding effort by failure to complete incubation; (4) egg breakage or death; (5) death of young in the nest because of inability to thermoregulate; (6) disrupting nesting activities such as feeding young; (7) causing premature fledging and dispersal of juveniles; (8) stress to adults resulting in less hunting and starvation of young; and (9) various other impacts.

The effects of disturbances on peregrine falcons vary with the timing of the disturbance and the proximity to the eyrie. The peregrine falcon is particularly sensitive to disturbance near the nest cliff during the breeding season. In early spring during courtship, disturbed birds are particularly

liable to desert an area. Part of the male's courtship ritual involves ledge displays to attract a female to a particular ledge for use as a nest site (Nelson 1970). The female will accept or reject the ledge, and it is believed that this is based largely on the protection from predators the ledge offers. If disturbance occurs near the ledge, the female will often reject the ledge and search for a better one. If human activities are centered generally throughout the nesting area, the entire territory may be abandoned, and the pair may not nest (Hickey 1942, Bond 1946, Fyfe and Olendorff 1976). Peregrines have abandoned their nest ledges after a single short visit by a human before or during egg laying (Fyfe and Olendorff 1976).

After the eggs are laid, the parents are less likely to abandon their nest, but many still do so. After the eggs hatch, but before the young fledge, the parents are most likely to "sit tight" and defend the nest vigorously rather than abandon it. Another critical period occurs just prior to fledgling by the young. Disturbance at the nest may cause the nestlings to fledge prematurely, which may result in injury or death, or expose them to predators.

The birds utilizing Bay area bridges, such as the Richmond-San Rafael Bridge, may be accustomed to higher levels of noise disturbances than other birds nesting within the range. However, the construction activities are expected to increase noise levels and visual distractions to a higher degree than is associated with typical road and boat traffic. Other retrofit construction projects (i.e., Oakland Bay Bridge, Hayward-San Mateo Bridge) occurring simultaneously within the San Francisco Bay area may reduce the potential for the Richmond-San Rafael Bridge birds to find and utilize alternative bridge sites during construction and increase the cumulative effects on peregrine falcons.

Peregrines rarely return to their own nest to breed with their parents or siblings; instead, most move 1- to 250 miles and breed with unrelated birds. Falcons coming to California bridges in the future are unlikely to be offspring fledged from nests on the bridge being impacted. This means that the productivity of an individual bridge is not critical to continued occupancy of that specific territory or bridge. Hence, bridges have remained occupied now for many years despite higher than normal mortality of fledglings that occurs because of drowning and car collisions. For this reason, moving broods to hack sites has been suggested by some biologists as a way to salvage young peregrines and allow them to fledge under safer conditions.

Hacking of five-week old peregrine falcons will greatly enhance peregrine productivity and reoccupancy of many areas of historic range in California. According to Walton (pers. comm. 1997), almost all birds on buildings and bridges initially came from these releases, although currently most falcons come from wild nests.

Cumulative Effects

Cumulative effects include the effects of future State, Tribal, local or private actions that are reasonably certain to occur within the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Conclusion

After reviewing the current status of the American peregrine falcon, the environmental baseline, the effects of the proposed action and the cumulative

effects, it is the Service's biological opinion that the seismic retrofit of the Bridge, as proposed, is not likely to jeopardize the continued existence of the American peregrine falcon. This determination is based on implementation of the conservation measures to minimize harm that are outlined in your biological assessment and March 19, 1997, letter.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit take of endangered and threatened species, respectively, without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns, including breeding, feeding, or sheltering. Harass is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with this Incidental Take Statement.

Amount or Extent of Take

The Service has determined that incidental take of reproduction associated with the peregrine falcon territories within the vicinity of the Bridge is likely to occur throughout the project duration (3 years). The Service estimates that all progeny from one nesting pair of peregrine falcons will be subject to take in the form of harm, harassment, or capture for a period of three years.

Effect of the Take

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the American peregrine falcon or a reduction of opportunity for recovery of the species.

Reasonable and Prudent Measures

The Service determines that no reasonable and prudent measures are necessary to minimize the impact of incidental take of peregrine falcons. The Federal Highway Administration, however, has a continuing duty to regulate the activity covered by this incidental take statement. If FHA fails to require the applicant to adhere to the measures proposed in the project description, the protective coverage of section 7(o)(2) may lapse.

Reporting Requirements

The Service has an established protocol for the handling and analysis of dead, sick or injured listed species. Any dead or injured peregrine falcons must be reported to the Service's Law Enforcement Division (916/979-2986) within 24 hours, and turned over as soon as possible to the Law Enforcement Division or to a game warden or biologist of the California Department of Fish and Game for care or analysis. The Service is to be notified in writing within three

working days of the accidental death of, or injury to, any peregrine falcon, or of the finding of any dead or injured peregrine falcon during construction operations. Notification must include the date, time, and location of the incident or discovery of a dead or injured peregrine falcon, as well as any pertinent information on circumstances surrounding the incident or discovery. The Service contact for this written information is the Field Supervisor (916/979-2710). Reinitiation of consultation is required upon the discovery of two or more dead or injured peregrine falcons within 1/4 mile of the Richmond-San Rafael Bridge.

REINITIATION - CLOSING STATEMENT

This concludes formal consultation on the actions as outlined in the FHA's February 3, 1997, request. The incidental take permitted in accordance with this project is authorized through the breeding season of 2000. Any maintenance activities anticipated after that time will require reinitiation of consultation on this project. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

If you have questions regarding this response, please contact Ms. Ina Pisani at (916) 979-2725.

Sincerely,

for Wayne S. White
Field Supervisor

cc: AES-Portland, OR (Div. of Consultation & Conservation Planning)

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